

CLAIMS:

1. Apparatus for separation of contaminants from a liquid, said apparatus comprising a gravitational separation means and a screen filter means, said screen filter means receiving output from said gravitation separation means, and wherein said screen filter means includes woollen fibre.

2. Apparatus according to claim 1 wherein the gravitational separation means includes at least one woollen fibre filter stage.

3. Apparatus according to claim 1 wherein the screen filter means comprises a composite of woollen fibre and one or more of the following components:

- (i) polypropylene fibre
- (ii) polyester fibre
- (iii) other synthetic fibre

4. Apparatus according to claim 3 wherein the screen filter means comprises a composite of woollen fibre and two other components in a ratio of approximately 80:10:10 respectively on a dry weight basis.

5. Apparatus according to claim 2 wherein the filter of the gravitational separation means comprises a composite of woollen fibre and one or more of the following components:

- (i) polypropylene fibre
- (ii) polyester fibre
- (iii) other synthetic fibre

6. Apparatus according to claim 5 wherein the filter of the gravitational separation means comprises a composite of woollen fibre and two other components in a ratio of approximately 80:10:10 respectively on a dry weight basis.

7. Apparatus according to claim 3 wherein the screen filter means comprises a plurality of screen filters, each progressively denser in the direction of flow of the liquid than the next.
- 5 8. Apparatus according to claim 7 wherein the fibres of each of the screen filters are carded and/or twisted and/or warped and/or knitted and/or felted.
9. Apparatus according to any one of the preceding claims configured to provide a circular flow path for the liquid.
- 10 10. Apparatus according to any one of claims 1 to 8 configured to provide a snaking flow path for the liquid between an aligned inlet and outlet.
- 15 11. Apparatus according to claim 9 wherein a series of connected concentric circular chambers are provided which house the gravitational separation means and the screen filter means.
- 20 12. Apparatus according to claim 10 wherein the chamber or chambers housing the gravitational separation means precede the chamber or chambers housing the screen filter means in a linear sequence spaced between the aligned inlet and outlet.
- 25 13. Apparatus according to any one of claim 9 or 11 wherein said screen filter means are provided in a screen filter means chamber or chambers which is or are concentric with a gravitational separation means chamber or chambers in which said gravitational separation means are provided.

14. Apparatus according to claim 13 wherein the direction of flow in the screen filter means chamber or chambers is opposite to the direction of flow in the gravitational separation means chamber or chambers.
- 5 15. Apparatus according to claim 14 wherein a plurality of gravitational separation means are provided, each of which are provided in respective gravitational separation means chambers, adjacent one of which are connected by a conduit extending from substantially at the liquid surface of a first chamber to substantially at the floor of the adjacent downstream chamber, and wherein a most upstream gravitational separation means chamber is provided with an inlet port.
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16. Apparatus according to any one of the preceding claims wherein the screen filter means are provided in the form of at least one screen filter means chamber including at least one screen filter of said at least one screen filter means chambers adapted to receive the output from a gravitational separation means chamber.
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17. Apparatus according to claim 16 wherein the apparatus is configured and arranged to, in use, maintain a static liquid head in each of said gravitational separation means chamber or chambers and screen filter means chamber or chambers to such as to maintain the filter of the gravitational separation means and the screen filter means, respectively, in a substantially wetted state.
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18. Apparatus for separation of contaminants from liquids including:
- 30 at least two connected primary chambers which operate as gravitational separators, wherein a first chamber has an inlet port and a connecting conduit to a second chamber, and

at least two connected secondary chambers each separated by a screen filter comprising a composite filter material, wherein a first of said secondary chambers receives output from the most downstream chamber and the most downstream of said secondary chambers discharges treated liquid.

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19. Apparatus according to claim 18 wherein the two primary chambers are connected in series, the inlet to the apparatus feeding into a first of the primary chambers which is then connected to the second of the two primary chambers via one or more pipes configured in the nature of an inverted periscope skimmer to allow transfer of floating material from the first primary chamber to the second whilst maximising retention of non floating separated material.

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20. Apparatus according to claim 19 further including a third primary chamber connected to the second primary chambers via one or more pipes configured in the nature of an inverted periscope skimmer to allow transfer of floating material from the second primary chamber to the third, said third primary chamber containing a composite fibre filter for the adsorption of petroleum hydro carbons, and the absorption of heavy metals and some other suspended particular material.

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21. Apparatus according to claim 20 wherein the third primary chamber is connected via a pipe to the first of the secondary chambers.

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22. A method of liquid treatment using a separation apparatus substantially as described in any one of the preceding claims, said method comprising the steps of:

- (i) transporting the liquid to be treated to the gravitational separation means and processing the liquid, and

- (ii) transporting the liquid from step (i) to the screen filter means for further treatment and then discharging the liquid.

- 5 23. Apparatus substantially as herein described with reference to the accompanying drawings.
- 24. A method according to claim 22 substantially as herein described or exemplified with reference to the accompanying drawings.